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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,237	08/28/2006	Janne Maaranen	002429USU/3053	2225

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STAMFORD, CT 06901

EXAMINER
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LEE, RIP A

ART UNIT	PAPER NUMBER
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1796

MAIL DATE	DELIVERY MODE
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12/05/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/550,237	<b>Applicant(s)</b> MAARANEN ET AL.	
	<b>Examiner</b> RIP A. LEE	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,9-14,16-22,24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7, 9-14, and 16-22 is/are rejected.
- 7) ☒ Claim(s) 24 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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### **DETAILED ACTION**

This office action follows a response filed on September 15, 2008. Claims 1, 3, 4, 10-13, and 20-22 were amended relative to originally presented claims. Claims 2, 8, 15, and 23 were canceled, and new claims 24 and 25 were added. Claims 1, 3-7, 9-14, 16-22, 24, and 25 are pending.

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3 is indefinite because substituent R" has not been defined.
3. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 is indefinite because it depends from a canceled claim.
4. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There are eight structural isomers of "bis(dimethylindenyl)Hf dibenzyl," and it is not clear which isomer is being claimed.

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***Claim Rejections - 35 USC § 102 / 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 3-5, 9, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Turner *et al.* (U.S. 5,767,208) for the same reasons set forth in the previous office action dated March 17, 2008.

Briefly, Turner *et al.* discloses an olefin polymerization process in the presence of catalysts containing a bridged hafnocene compound,  $\text{Me}_2\text{Si}(\text{C}_5\text{Me}_4)(\text{Cp})\text{Hf}(\text{CH}_2\text{Ph})_2$ , (col. 4, lines 1-12; claim 5) and aluminoxane co-catalyst (col. 8, lines 41-61). Use of inert support and use of catalyst for making ethylene homopolymer and ethylene-hexene copolymer is fully disclosed (col. 9, lines 44-50).

7. Claims 1, 3-7, 9-14, and 16-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Skar *et al.* (WO 00/40620) for the same reasons set forth in the previous office action dated March 17, 2008.

Briefly, Skar *et al.* discloses a series of transition metal complexes for use as a component in an olefin polymerization catalyst. Compounds are represented by the formula  $(\text{Cp}-\text{R}^1)(\text{Cp}-\text{R}^2)\text{Hf}(\text{X}_1)(\text{X}_2)$ , where  $\text{R}^1$  and  $\text{R}^2$ , same or different, are linear or branched  $\text{C}_1$ - $\text{C}_{10}$  hydrocarbyl group and  $\text{X}^1$  and  $\text{X}^2$  are halogen, methyl, or benzyl (col. 7, lines 5-15). The inventors disclose the compound  $(n\text{-BuCp})_2\text{HfCl}_2$ , and it follows that the compound  $(n\text{-BuCp})_2\text{HfBz}_2$ , where Bz is benzyl, is a veritable embodiment within the scope of the inventive metallocenes. The catalyst is comprised of the contact product of metallocene, aluminoxane, and an inert carrier (col. 7, lines 40-50). The polymerization process involves a multi-stage operation in which olefin is polymerized in the first stage in a loop reactor and in a second stage in a gas phase reactor; more than one gas phase operations, carried out in sequence is contemplated. See discussion in columns 8-10 and claims 1-3, 10, and 11. Production split between components is 30:70 to 70:30 (col. 10, lines 10-13). Prepolymerization is disclosed in col. 8, line 12.

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***Allowable Subject Matter***

8. Claims 24 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 24 is drawn to a polymerization process carried out in slurry phase using a catalyst containing a metallocene compound of formula (indenyl)(Cp'')M(CH<sub>2</sub>SiMe<sub>3</sub>)<sub>2</sub> wherein Cp'' is a cyclopentadienyl substituted with at least one C<sub>1</sub>-C<sub>20</sub> alkyl group. In this case, it is understood that this represents a mixed ring metallocene containing one indenyl ligand and one cyclopentadienyl ligand; note while Cp is defined as cyclopentadienyl, indenyl, tetrahydroindenyl, or fluorenyl, Cp'' is defined as cyclopentadienyl (specification page 4, lines 10-15 and page 5, lines 24-30). Claim 25 is drawn to a polymerization process carried out in slurry phase using a catalyst containing a metallocene compound of formula (Cp)(Cp'')M(CH<sub>2</sub>SiMe<sub>3</sub>)<sub>2</sub> wherein Cp is an optionally substituted and/or optionally fused homocyclopentadienyl ligand and Cp'' is a cyclopentadienyl substituted with at least one C<sub>1</sub>-C<sub>20</sub> alkyl group. None of the references cited to date teaches or renders obvious the process of the instant claims 24 and 25.

***Response to Arguments***

9. The rejections of claims under 35 U.S.C. 112, 1<sup>st</sup> and 2<sup>nd</sup> paragraph, set forth in paragraphs 14 and 16 of the previous office action dated March 17, 2008, have been withdrawn in view of claim amendments.

Applicant traverses the rejection of claim 22 under 35 U.S.C. 112, second paragraph, as set forth in paragraph 17 of the previous office action dated March 17, 2008 and in paragraph 4 of this office action. Applicant submits that claim 22 as amended extends to all eight isomers. This line of reasoning is not found persuasive. First, claims do not appear to have been amended. Second, the specification is devoid of any disclosure indicating that all isomers of *bis*(dimethylindenyl)Hf dibenzyl are covered by the term to the extent that Applicant had possession of all eight isomers at the time of invention. Note that the isomer *bis*(1,2-dimethylcyclopentadienyl)Hf dibenzyl appears in the same claim and positions of the two methyl

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substituents are delineated. Thus, there is no apparent reason as to why any specific isomer(s) has(have) not been claimed for *bis*(dimethylindenyl)Hf dibenzyl. In light of these considerations, it is deemed that a specific compound can not be deduced from the term, *bis*(dimethylindenyl)Hf dibenzyl, and therefore, the subject of the claim has been rendered indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Accordingly, the rejection has been maintained.

Applicant traverses the rejection of claims under 35 U.S.C. 102(b) as being anticipated by Turner *et al.* (U.S. 5,767,208). Applicant states that claims have been amended to preclude bridged metallocenes. Applicant's arguments have been considered, but they are not persuasive because the language of present claim 1 does not exclude bridging groups. Note that the only criterion is that Cp may be substituted and Cp'' contains at least one C<sub>1-20</sub> alkyl group. Turner *et al.* discloses the compound, Me<sub>2</sub>Si(C<sub>5</sub>Me<sub>4</sub>)(Cp)Hf(CH<sub>2</sub>Ph)<sub>2</sub>, wherein (Cp) corresponds to Cp in that it is a substituted cyclopentadienyl ligand and (C<sub>5</sub>Me<sub>4</sub>) corresponds to Cp'' as it contains at least one C<sub>1</sub> alkyl group. In light of these considerations, the rejection has been maintained.

Applicant traverses the rejection of claims under 35 U.S.C. 102(b) as being anticipated by Skar *et al.* (WO 00/40620). Applicant's reasons that Skar *et al.* does not teach a dibenzyl hafnocene complex because one must choose X<sub>1</sub> and X<sub>2</sub> together from the general formula shown in claim 1 of the prior art in order to arrive at such a complex. Applicant's arguments have been considered fully, but they are not persuasive. In fact, Applicant implies that Skar *et al.*, indeed, discloses a dibenzyl hafnocene.

MPEP § 2131.02 [R-6] provides guidance for determining anticipation with respect to chemical formulae. If one of ordinary skill in the art is able to "at once envisage" the specific compound within the generic chemical formula, the compound is anticipated. One of ordinary skill in the art must be able to draw the structural formula or write the name of each of the compounds included in the generic formula before any of the compounds can be "at once envisaged." One may look to the preferred embodiments to determine which compounds can be anticipated. *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962).

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Claim 1 of Skar *et al.* has been reproduced below for convenience. Note that  $X_1$  and  $X_2$  are the same, and from the compound  $(n\text{-BuCp})_2\text{HfCl}_2$ , exemplified in the working examples, the person of ordinary skill in the art would at once envisage and be able to draw or write the corresponding compound  $(n\text{-BuCp})_2\text{HfBz}_2$ , wherein Bz is benzyl.



wherein

$X_1$  and  $X_2$  are either same or different and are selected from a group containing halogen, methyl, benzyl, amido or hydrogen,  
Hf is hafnium,

Therefore, it is deemed that the compound  $(n\text{-BuCp})_2\text{HfBz}_2$  is disclosed adequately in Skar *et al.* and that the prior art also teaches the process recited in the instant claims. That is, the subject of the instant claims is anticipated by Skar *et al.* In light of these considerations, the rejection has been maintained.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu S. Jagannathan, can be reached at (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/Rip A. Lee/  
Art Unit 1796

December 2, 2008

/Vasu Jagannathan/  
Supervisory Patent Examiner, Art Unit 1796